Mechanoreceptors Involved in Hearing
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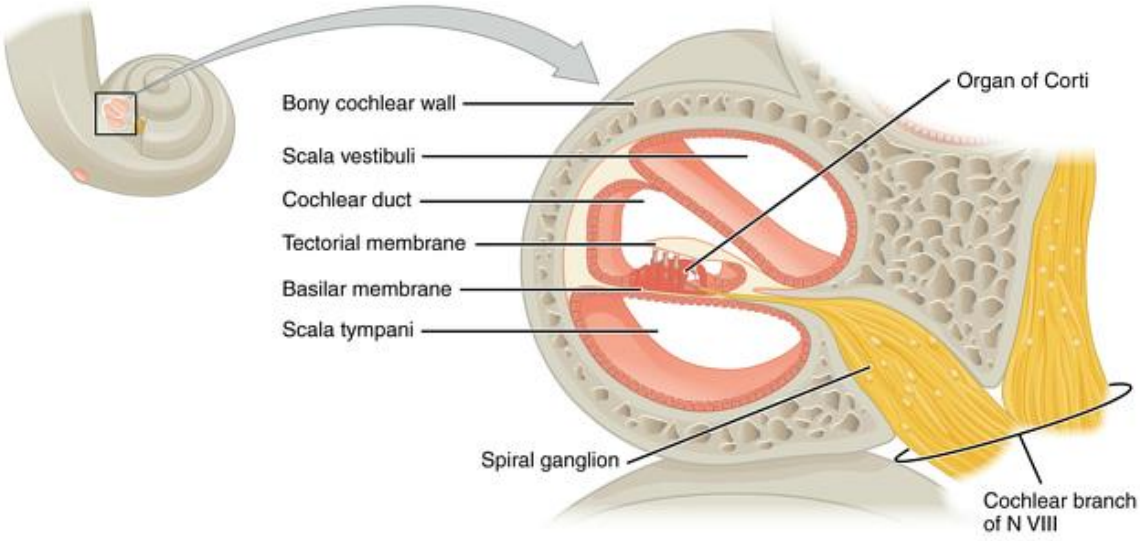
The **organ of Corti**, or spiral organ, is the sensory receptor organ for hearing located within the **cochlea** of the inner ear. It is a highly specialized strip of epithelial cells responsible for transducing sound vibrations into nerve impulses that the brain can interpret as sound.



Mechanoreceptors in the auditory system are specialized hair cells located in

the organ of Corti in the cochlea.
These receptors convert mechanical sound vibrations into electrical nerve impulses through mechanotransduction.

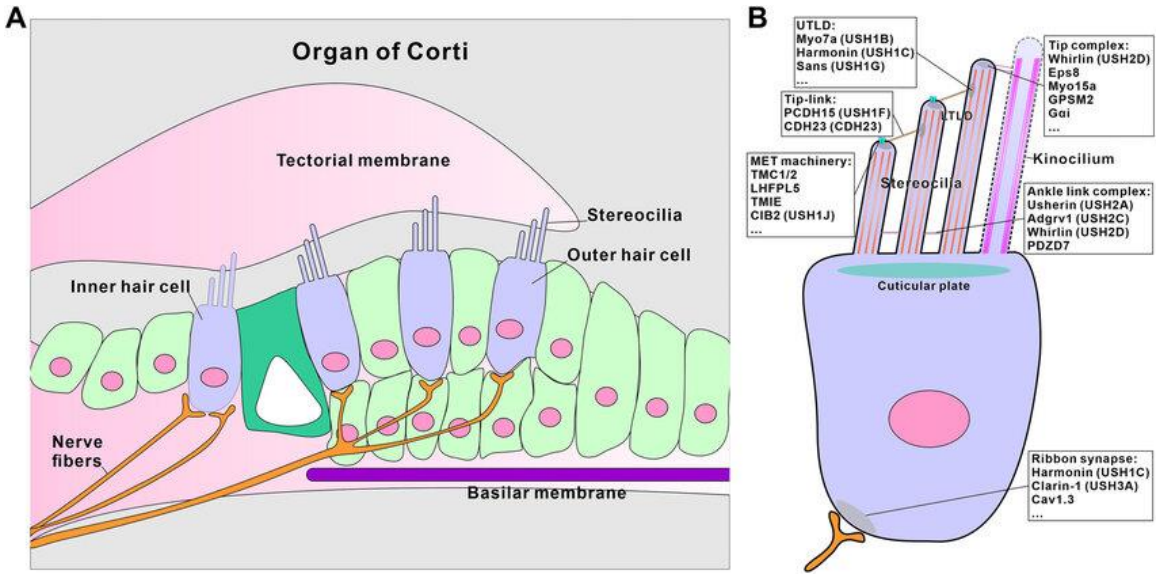


Fig.: A cross-section of the Organ of Corti showing inner & outer hair cells: [NCBI StatPearls]

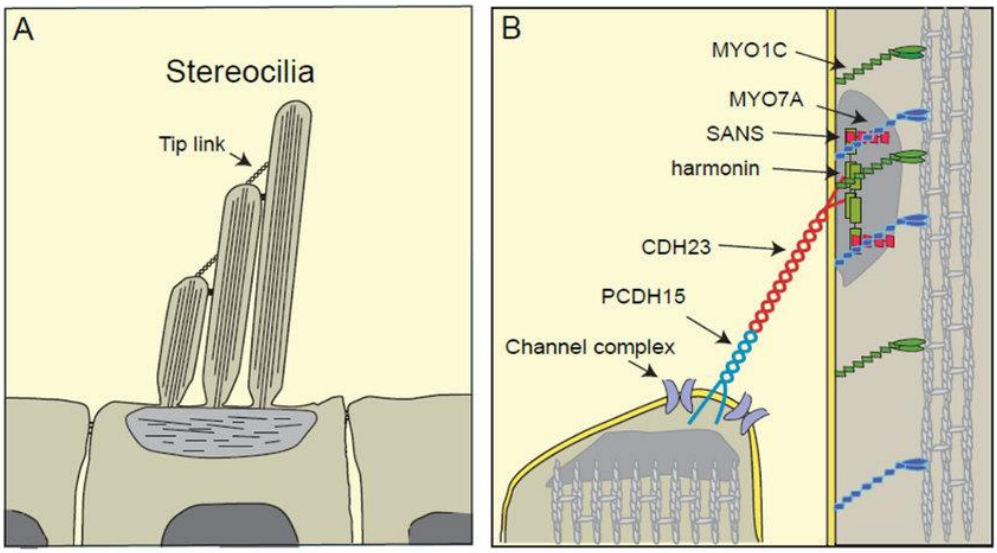


Fig.: Deflection of stereocilia and opening of MET channels

1. Inner Hair Cells (IHCs)

- Primary sensory receptors (~3,500).
- Convert mechanical vibrations into electrical signals.

2. Outer Hair Cells (OHCs)
- More numerous (~12,000).
- Function as amplifiers using electromotility.

3. Stereocilia
- Sensory projections with tip links.
- Deflection opens mechanotransducer (MET) channels → K+ influx → depolarization.

Simple Diagram (Conceptual):

Sound Waves → Cochlear Hair Cells → (Inner Hair Cells / Outer Hair Cells) → Auditory Nerve → Brain

Flowchart: Mechanotransduction

Sound vibration → Basilar membrane movement → Stereocilia deflection → MET channel opening → K+ influx → Depolarization → Glutamate release → Auditory nerve activation

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